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## PEOPLE'S REPUBLIC OF CHINA SCIENTIFIC ABSTRACTS

No. 164

This serial publication contains abstracts of articles published in selected scientific and technical journals. JPRS is unable to honor requests for original source materials or information as to the availability of full translations of these articles.

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SCIENTIFIC EXPERIMENT

AUTHOR: None

ORG: Kailan Coal Mines Technical Office

TITLE: "Reforming Hundred Years Old Mines"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 1-3

ABSTRACT: This article reviews the technical innovations in the Kailan Coal Mines since 1971 that enabled its coal output to reach 25.63 million tons in 1975. The innovations reviewed include mainly: 1) increase of bucket capacity and hoist efficiency in the Fan-ko-chuang mine, and boosting of the existing motor with a subsidiary motor in parallel in the T'ang-shan mine; 2) establishment of a new system to maintain and change railway rails without hindering operations; and 3) reclamation of old abandoned mines. Altogether more than 5,000 innovations, that include hoisting, conveyance, draft, drainage, and power supply systems were realized during the period of 1971-1975.

AUTHOR: None

ORG: Ma-wan-shui Engineering Team, Fifth Shafts and Tunnels Company,  
Han-hsing Metal Mines

TITLE: "Climbing Peaks Through Constant Revolution"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 3-5

ABSTRACT: This article reports the many technical innovations at the Ma-wan-shui Engineering Team that enabled her to set 19 speed records of mineral excavation since its organization in September 1949. As a result, the monthly depth of mineral excavations has increased from 23.7 meters in 1949 to the present 3,125.3 meters, and a rock yield of half a million cubic meters, after coping with different rock formations and more than two hundred faults. The innovations reported included: 1) adoption and modification of rake loading machines; 2) adoption and modification of the shuttle type mineral cars for automatic continuous excavation, mucking and transportation of minerals; and 3) promotion of mass subsidiary innovation propositions.

AUTHOR: None

ORG: This Journal

TITLE: "The Superior T'ai-shan No 1 and No 4 Wheat Varieties"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 p 5

ABSTRACT: This article introduces the characteristics of the newly hybridized superior T'ai-shan No 1 and No 4 winter wheat varieties, cultured by the Shantung T'ai-an District Agricultural Institute. T'ai-shan No 1 has a yield of more than 700 kan per mou, is 95 cm high, weighs about 42 gm per 1,000 rains, and is resistant to stripe rust, leaf rust and powdery mildew. T'ai-shan No 4 has a yield of 800 to about 1,000 kan per mou, is 80 cm high, weighs about 40 gm per 1,000 grains, and is resistant to stripe rust, leaf rust, stem rust, and powdery mildew.

AUTHOR: None

ORG: Tientsin Electric Transmission Design and Planning Institute

TITLE: "Open-Door Research Changes New Outlook"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 pp 6-7, 39

ABSTRACT: This article reports the drastic changes in the Tientsin Electric Transmission Design and Planning Institute since her adoption of the "open-door" research policy. Over 80% of the more than 250 new items designed has been successfully applied to processes in metallurgy, mines, electric power, agriculture, machinery, and military engineering. The construction, performance, characteristics and applications of a new transmission for initial steel roller mills, a cold and hot metal photoelectric rolling material position detector, and a new electrically charged fence for cattles developed by the institute are also introduced.

AUTHOR: None

ORG: Fourth Laboratory, Kirin Institute of Applied Chemistry

TITLE: "Rare Earth Isopentyl Rubber"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 8-9

ABSTRACT: This article reports the development in China of a new process for the polymerization of isoprene into isopentyl rubber, using rare earths as catalyst. The process, illustrated by a flow sheet diagram, includes the preparation of rare earth compounds and metal alkylates (not specified) as catalysts, polymerization, and post treatment. The content of cis-1-4- structures is 94% against the titanium rubber's 97%, and lithium rubber's 92%. The process is claimed to be of great significance since rare earths resources are abundant in China, the properties of the rubber is between those of lithium and titanium rubber, and the behavior of the rare earth catalyst is better than the lithium and titanium catalysts.

AUTHOR: CHAO Hung-chun [6392 7703 6874]

ORG: Shansi Agricultural College

TITLE: "Soilless Cultivation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 10-11

ABSTRACT: The author introduces the knowledge concerned with the still developing technique of soilless plant cultivation, which includes its various types, such as water, pebbles, sand, fog, fumigated charcoal, moisture and lichens cultivation, the requirement of nutrients, water, pH and oxygen, and such existing problems as nutrient ratios, pH regulations, and disinfection techniques.

AUTHOR: None

ORG: Rubidium Clock Research Group, Shanghai Optical Instrument Institute and Shanghai Kuo-jung Lamp Plant

TITLE: "Rubidium Atomic Clock"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 pp 11-13

ABSTRACT: Commemorating the successful development of rubidium atomic clocks in China by the joint effort of the Shanghai Optical Instrument Institute and the Shanghai Kuo-jung Lamp Plant, where the ticks of the clocks are the natural vibrations of rubidium atoms, this article introduces the characteristics, construction, significance, performance theory, and applications of rubidium atomic clocks. In conclusion, the importance of very close coordination between workmen and researchers to study and solve pending problems is stressed with examples.

AUTHOR: TS'AO Hsiao-p'ing [2580 1420 1627]

ORG: Rural Descended Intellectual Youth, Hunan Hsiang-yin Hsien Ho-lung Lake Farm Tung-tsa Production Brigade

TITLE: "People Calls Me 'Pig Commander'"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 p 14

ABSTRACT: The author relates his finding some methods to breed pigs from observations on the habits of pigs, which eventually earned him the name of "pig commander". The methods so found include: 1) maintaining of a pool of water leading to dirt outlet to attract urination, and therefore kept the pen clean; 2) thorough mixing of rations to avoid picking; and 3) separation of weak from strong, young from old, and new from old during feeding.



AUTHOR: None

ORG: Kwangsi Chuang Autonomous Region Ling-shan Hsien Rural Descended Intellectual Youth Administrative Office

TITLE: "'Electric Sprayer'Developed by Wang Wen-hsin [3769 2429 2450]"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 pp 14-15

ABSTRACT: This article reports the development of a crude electric sprayer by a rural descended intellectual youth, to meet an urgent demand for pest control. The electric sprayer was made from an assembly of waste materials, which was powered by batteries, and cost only ¥2.-. Weighing barely two kan, the sprayer can cover 20 mous per hour by one person. A schematic diagram showing the construction of the sprayer is also given.

AUTHOR: None

ORG: Intellectual Youth Research Group, Hopeh Tung-kuang Hsien Lung-wang-li Commune T'ang-fang Production Brigade

TITLE: "Research on Cotton"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 p 15

ABSTRACT: This article reports two research on cotton by rural descended intellectual youths, namely: 1) hybridization of a new cotton varieties from two good cotton varieties with different floral period, with a 60% increase in cotton yield; and 2) development of a two cotton crop system based on selection of appropriate varieties, and enforcement of close planting, water and fertilizer application, and growth control techniques. A 314 kan per mou yield of unginned cotton was thus attained.

AUTHOR: LI Chih-ch'ao [2621 1807 6389]

ORG: Shansi I-Hsien District Yuan-p'ing Agricultural School

TITLE: "Top Dressing Over Leaves"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 16-17

ABSTRACT: The author introduces the general knowledge concerned with top dressing over leaves, with regard to why leaves can absorb nutrients, why top dressing over leaves can increase crop yield, and the techniques of top dressing over leaves that include timing of spray, control of solution concentration, selection of fertilizer proportions, and method of spraying.

AUTHOR: WEN Hsiu-pi [2429 4423 4310]

ORG: Hunan Heng-yang Hsien Revolutionary Committee Cultural and Education Bureau

TITLE: "New Ways to High Yielding Dioscorea japonica, Thunb."

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 17

ABSTRACT: The author reports successful grafting of Chinese yam (*Dioscorea japonica*, Thunb.), an important and much demanded traditional Chinese herbal medicine, to sweet potato, due to the similarity between the two plants, and the later is larger in size and heavier than the former. The yield of such grafted Chinese yam was found to be 8 times higher than those not grafted, but still retains its normal pharmacological effect. Following an introduction to the grafting technique with illustrations, the procedure of grafting that include same period sprouting, grafting while planting, cutting of sweet potato buds, creeper support, and fertilizing, are described.

AUTHOR: None

ORG: Peking Academy of Agricultural Science Institute of Crops, and  
Peking T'ung Hsien Institute of Agricultural Science

TITLE: "Alternative Male-Sterile Maize"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 18-19

ABSTRACT: This article advocates the practice of male-sterile, or pulling off the tassels of maize at alternate rows or trees, especially in the cases of intercropping, to attain higher maize yield. Following a statistical review on the noticeable increase in maize yield, and shortening of maize growth due to male-sterile practice in the vicinity of Peking, as well as Shantung and Honan provinces, the article introduces the knowledge concerned with the reasons why alternate rows male-sterile can increase maize yield, the conditions for the adoption of such technique, and the timing, technique and quantity of male-sterile practice.

AUTHOR: None

ORG: Digital Control Teaching Group, Shanghai Sparetime Industrial  
University

TITLE: "On the Principles of Digital Machine Tool Control"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 20-22

ABSTRACT: This article introduces the general principles of digital control of machine tools, which include: 1) the open-ring and closed ring systems in digital control of machine tools; 2) digital control in the forms of point-position control, straight line cutting control, and series locus control; and 3) the pulse distribution or interpolation computation that determines the structure of the digital control system by pulse counter, point-by point comparison, or digital integrator.

AUTHOR: None

ORG: Dairen Second Peoples' Hospital Chih-pan-su Research Group

TITLE: "Chih-pan-su-A New Medicine for Leukasmus"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 23-24

ABSTRACT: This article reports successful treatment of leukasmus by a new medicine named Chih-pan-su, an alcohol extract of *Psoralea corylifolia* L., based on an ancient traditional Chinese medical book for the disease. The medicine is prepared in the form of intramuscular injections or external application, but must be coordinated with ultraviolet rays or sunlight radiation. So far, hundreds of such patients have been cured by such treatment.

AUTHOR: WANG Ang-sheng [3769 2491 3932]

ORG: Institute of Atmospheric Physics, Chinese Academy of Sciences

TITLE: "Cumulo-nimbus Structure and Artificial Effects"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 25-27

ABSTRACT: The author introduces the general knowledge concerned with the causes of cumulus-nimbus formation, its structures, the modern techniques of detecting them, and how these detection results can be applied to artificially destroy hailstone hazards, as well as create artificial rains.

AUTHORS: FANG Tan-ch'un [2455 0030 5028]  
WANG Wen-ch'i [3769 2429 1142]

ORG: Both of Peking Institute of Labor Protection Science

TITLE: "Sound Isolation and Vibration Reduction"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 27-28

ABSTRACT: The authors introduces the general knowledge concerned with modern measures to isolate or reduce noise and vibrations, with regard to selection of construction materials, wall, window, door, ceiling and floor design and construction, as well as application of damping materials. In addition to the adoption of certain personal noise and vibration protective devices, the authors stress the importance of appropriate urban planning to reduce noise and vibration pollution.

AUTHOR: None

ORG: This Journal

TITLE: " Rubber Bulwarks Protection"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 32

ABSTRACT: This article reports successful development and installation of rubber fenders on seaport wharves and piers to protect the bulwarks of docking ships from impact and abrasion. The rubber fenders are of drum, cylindrical or V- shapes, and are superior to timber fenders in elasticity, absorbability, resistance to seawater and abrasion, and more than five times longer serviceable life.

AUTHOR: None

ORG: Nan-t'ung Science Committee and Nan-t'ung Revolutionary Committee

TITLE: "A New Digital Direct Reading Automatic Carbon and Sulfur Analyzer"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 p 32

ABSTRACT: This article reports successful development of Model SZY-76 direct reading, digital, automatic carbon and sulfur analyzer, jointly developed by the Kiangsu Nan-t'ung July 1st Machine Tool Plant, the Third Nan-t'ung Radio Plant, and the Nanking Engineering College. The instrument is intended for fast analysis of carbon and sulfur contents in ferrous, metallurgical and machine building industries. The construction, performance and other details of the instrument are not given.

AUTHOR: SU Mao-kung [5685 5399 0361]

ORG: None

TITLE: "Soya Bean Pure-line Selection During the Sprouting Period"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 76 p 32

ABSTRACT: The author advocates the selection of pure-line soya bean during the sprouting period according to the color of young stems, which should correspond also to the later floral colors, thus omitting any repetitive tedious pure-line selection processes during the later floral period and the ripening period.

AUTHOR: None

ORG: This Journal

TITLE: "Ozone Decolorization"

SOURCE: Peking K')-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 32

ABSTRACT: This article reports successful construction of a ozone generator and a ozone oxidation tower at the Second Shanghai Printing and Dyeing Plant in 1971 to generate ozone for sewage decoloration. The results show that the efficiency of ozone decoloration is as high as 90%, while void of sludge and residual toxic substances. It is contemplated that the method can further be coordinated with the existing biochemical treatment of printing and dyeing sewage.

AUTHOR: None

ORG: This Journal

TITLE: "Single Injection Treatment of Pig Paralysis"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 33

ABSTRACT: This article reports successful treatment of pig paralysis by a single injection of An-t'ung-ting and penincillin at the Pai-hui point. The method was developed by the Shensi Lu-yang Hsien Shuang-chi-ya Commune Veterinary Station after successful treatment of 44 pig paralysis, using three injections at two points. It is admitted also that serious paralytic cases might require three injections in 5-7 days. 8 pigs were thus cured this year.

AUTHOR: None

ORG: This Journal

TITLE: "Plasma Illuminated Digital Working Frequency Meter"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 33

ABSTRACT: This article reports successful development of Model 705-2 Digital Computerrized Working Frequency Meter, jointly developed by the Nanking Instrument Bureau, the Second Nanking Transistor Plant, and the Nanking Water and Electric Instrument Plant. The instrument converts signals of such parameters as voltage, amperes, etc. into frequencies, and finally to direct digital readings. The instrument adopts MOS integrated circuit, and is claimed to be light, small size, good stability, and powerful interference resistance.

AUTHOR: None

ORG: Changchiakou Chien-hsiao Electrical Engineering Laboratoy

TITLE: "Automatic Alarms for Motors"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 33

ABSTRACT: This article introduces the circuit of a simple device that will automatically ring alarms in cases of power interruptions or malfunctions in motors.



AUTHOR: WANG Ling-k'un [3769 0109 0981]

ORG: Kiangsu I-cheng Agricultural Bureau

TITLE: "Sodium Phenyl Pentachloride Snail Control"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 p 33

ABSTRACT: The author reports successful application of sodium phenyl pentachloride to control snails in duckweeds. The efficiency was reported to be above 95%.

AUTHOR: HUANG Kwei-sheng [7804 2710 3932]

ORG: Fourth Navigation Engineering Bureau Design and Planning Research Institute, Ministry of Communication

TITLE: "Today's Chan-chiang Port"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp 37-39

ABSTRACT: The author reviews the development of Chan-chiang port since the liberation in 1949: After the completion of the Li-t'ang - Chan-chiang railway in 1955, two 10,000 tons shipping berths and corresponding railway yards, godowns, cargo yards and machine equipment were completed in 1956. Two 25,000 tons tanker wharves and oil storage facilities were completed in 1958. A 50,000 tons tanker wharf was completed in 1974. And two 10,000 tons mineral ore wharves were completed in 1975. Besides a two kilometers long dike to connect the existing railways, highways and the continent was completed in 1972. Thus, in addition to all the other modernization efforts, the Chan-chiang port has become the most important modern port in Southern China today.

AUTHOR: None

ORG: This Journal

TITLE: "Cover Photos"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp Front Cover and Cover 2

ABSTRACT: Front cover: Photo of a Chan-chiang wharf and facilities.  
Cover 2: Five photos of: a) a newly completed synthetic ammonia air  
compressor at Shanghai Air Blower Plant; b) diesel engines produced at  
Shantung Lai-yang Motive Power Machinery Plant; c) the first 18,000 hp  
diesel engine for 50,000 tons ships completed at Dairen Red Flag  
Shipyard; d) a corrosion resistant test box made by the First Ch'ang-  
ch'un Automobile Plant; and e) a new automatic digital controlled machine  
tool developed by the Eighth Peking Machine Tool Plant.

AUTHOR: None

ORG: This Journal

TITLE: "Cover Photos"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 8, Aug 76 pp Cover 3 and Back Cover

ABSTRACT: Cover 3: Five photos of the newly completed 300,000 kw  
double water internally cooled turbine generator at the Shanghai  
Steam Turbine Plant. Back cover: Two photos on the application of  
controllable silicon and transistor control technique to study the  
750 mm initial roller.

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ACTA BOTANICA SINICA

AUTHOR: None

ORG: Party Branch, Yueh-t'an Production Brigade, Yen-shih-hsien, Honan Province

TITLE: "A Peasants' College"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76  
pp 198-201

EXCERPT OF ENGLISH ABSTRACT: The May-7 Agricultural College of Yueh-t'an Production Brigade was established in the year of the great leap forward. In the past 18 years, the college has advanced in the struggle, especially since the great cultural revolution. It is a new-type socialist college, having the following advantages: The poor and lower-middle peasants take part in the management of the college; commune members who possess certain higher political consciousness and work hard are recommended to enter the college; the teachers are the cadres of the brigade and old poor peasants or technicians; its classroom is set in the 3 great revolutionary movements of class struggle, the struggle for production and scientific experiment; the teaching material is compiled and selected by the teachers and students on the bases of the advanced experience, local or introduced, past or present. The college operates during the growing season of wheat and the students are allowed to graduate through a favorable comment by the poor and lower-middle peasants on the bases of higher political consciousness, a good command of technique, and a correct attitude to work.

AUTHOR: None

ORG: Agricultural Experiment Station, Tung-sheng Commune, Peking Municipality

TITLE: "The Great Proletarian Cultural Revolution Made the Lowly More Intelligent - How we Undertook Haploid Breeding of Egg Plants"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76  
pp 217-220

EXCERPT OF ENGLISH ABSTRACT: The existing cultivars of summer egg plants are easily infected with diseases and their fruit dropping is rather serious because of the high temperature and the rainy weather during the growing season. This condition has affected the supply of vegetables from August to September. The new technique of haploid breeding was thus adopted in 1975. Anthers of  $F_1$  hybrids of 14 combinations of selected cultivars which were disease-resistant, flood-tolerant, and of high yield and good quality were used for experiment. A total of 6,348 anthers were inoculated and 413 of them were induced to become plantlets. Microscopical examination revealed that the chromosome number of 50% root tip cells was 12, being haploid. In recent months, 202 plantlets were transplanted to fields and they are now in flower and fruiting stages. Our practice proves that we not only can undertake the conventional breeding work but also can master the new technique in breeding work. The great cultural revolution made us, the lowly, more intelligent.

AUTHOR: WU Chi [0702 4764]

ORG: Scientific and Technical Service Group, Institute of Atomic Energy Utilization, Chinese Academy of Agriculture and Forestry, Stationed at the Lien-ch'ih Commune, Shen-ch'iu-hsien, Honan Province

TITLE: "Continue the Advance Along the Road of Integration With Workers and Peasants"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76 pp 221-225

TEXT OF ENGLISH ABSTRACT: The great proletarian cultural revolution gave me a chance to integrate with the workers and peasants. Through the practice of the three great revolutionary movements of class struggle, the struggle for production and scientific experiment, I was steeled and gained some experience. According to the needs of production, we worked together with the poor and lower-middle peasants to reform the cultivation system. In 3 years from 1973 to 1975 we succeeded in getting 2, 3, 4, and 5 crops a year. The production increased steadily and the cultivated areas enlarged continually. We found a new road in our locality for hastening the development of socialist agriculture.

AUTHOR: None

ORG: Ch'in-liu-kuai Production Brigade, Pai-tao-k'ou Commune, Hua-hsien, Honan

TITLE: "Applying Materialist Dialectics as Guide to Gain High Yield of Summer Maize"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76 pp 226-232

EXCERPT OF ENGLISH ABSTRACT: Under the guidance of Chairman Mao's revolutionary line, we, the poor and lower-middle peasants and cadres of our brigade sought for the law of growth and development of summer maize and summed up experiences of high yield. (1) Planting method: Cut furrows without plowing, apply fertilizer in a concentrated way, plant in alternating wide-narrow row space and set the seedlings in trigons; (2) Field management: Protect seedlings, promote ears and control period of growth in between seedling and ear; (3) Breed improved varieties and select good seeds. Since we adopted these cultural practices, our production brigade increased gradually the average yield of summer maize from over 100 chin per mu to over 1,000 chin per mu in a 400 mu acreage.

AUTHOR: None

ORG: Experimental Cooperation Group of Seed-Potato Production, Participated by Inner Mongolia Wu League Institute of Agriculture, Inner Mongolia University, Kansu Ting-hsi Bureau of Agriculture, Kansu Ting-hsi College of Agriculture, Institute of Microbiology Chinese Academy of Sciences, Peking Institute of Botany Chinese Academy of Sciences

TITLE: "Studies on the Technique of Seed-potato Production: I. Production of Virus-free Initial Stock by Means of Stem Tip Culture Technique"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76 pp 233-238

EXCERPT OF ENGLISH ABSTRACT: This is a preliminary report on potato stem tip culture since 1974. Excised stem tips with 1-2 leaf primordia were cultured in vitro. The improved medium contained Muller's macronutrients plus micronutrients and organic substances of "AES," plus sucrose, and agar. Four types of developmental growth patterns were obtained. The rate of seedling formation was about 50%. By way of repeated systematic virus assays, including host plant test and serological test, 8 varieties of virus-free potato plants are now available. After cutting the seedlings into segments and culturing them in the basic medium, the production of daughter plants was found to increase exponentially. Over 10 thousand virus-free seedlings and tubers have already been distributed to several initial stock farm bases.

AUTHOR: CHU Chih-ch'ing [2612 5267 3237]  
WANG Ching-chu [3769 2417 7467]  
SUN Ching-san [1327 2417 0005]

ORG: All of Peking Institute of Botany, Chinese Academy of Sciences

TITLE: "Development of Pollen Embryo of Rice and Wheat on Medium Devoid of Hormones"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76 pp 239-244

EXCERPT OF ENGLISH ABSTRACT: In our work, by using  $N_3$  and  $N_6$  medium devoid of hormones, pollen embryo and plant were obtained, deriving from anther of rice and wheat. Microscopical observation indicates that the development is basically conformable with zygotic embryo. There are 2 ways: (1) Originate directly from uninucleate pollen; (2) Uninucleate pollen divides into vegetative cell and generative cell, and then the vegetative cell develops into pollen embryo, but the generative cell degenerates gradually. We also suggest some opinions to raise the frequency in inducing pollen embryo in order to improve the method further.

AUTHOR: None

ORG: Research Group of Rice, Institute of Crop Cultivation, Shanghai Academy of Agriculture

TITLE: "Breeding of Late Ken Type Rice (*Oryza Sativa* Ken) -Hsin-hsiu"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76  
pp 245-249

TEXT OF ENGLISH ABSTRACT: The haploid breeding method of using anthers was successfully applied in the experiment of breeding new rice varieties, resulted in obtaining several dominant lines. From the second generation of the pollen plants, we made a series of cultivation test and observations for 3 years. We found that the main genetical characters and vigor between generations of the progenies were stable and even. The coefficient of variation (c.v) was below 5%, and could be maintained. Demonstration of cultivation and productive assessment have confirmed its value and named it late ken type rice, Hsin-hsiu. This proves that after selection of parents and combination of crosses were made, anthers of the hybrid could be artificially cultured, through which pollen plants could be obtained. Among them good lines could be selected. After testing their productive ability, followed by propagation, new variety could be obtained. This is a fast and efficient approach in crop breeding.

AUTHOR: None

ORG: Laboratory of Phytotron, Shanghai Institute of Plant Physiology

TITLE: "The Influence of High Temperature on Flowering and Fruiting of Early Rice and Its Control: I. The Influence of High Temperature on the Fruiting From Milky Stage to Ripening Stage"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76  
pp 250-257

EXCERPT OF ENGLISH ABSTRACT: This experiment deals with the high temperature injury from milky stage to ripening stage of early rice in a phytotron under natural light. The purpose is to study the effect of the different temperatures and their duration on fruiting during this stage. The early milky stage (6-10 days after heading) is more sensitive to the influence of high temperature on the percentage of ripened grain; the late milky stage (11-15 days after heading) is more sensitive on the weight of kilograin. The cause of the decrease of output affected by 35°C is mainly due to the decrease of weight of kilograin and the percentage of ripened grain but little influence on the percentage of empty seeds. The main cause of the decrease of kilograin weight and percentage of ripened grain is due to too early decrease of food accumulation, but not to sharp decrease of the assimilates.

AUTHOR: None

ORG: Research Group of Soybean Tissue Culture, Institute of Crop Breeding,  
Kirin Academy of Agriculture

TITLE: "Successful Induction of the Plantlets From the Callus Culture of Soya  
Hypocotyl"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] Vol 18 No 3, Sep 76  
pp 258-262

TEXT OF ENGLISH ABSTRACT: In order to enlarge the extent of soy hybridization to increase the range of variations and to create new cultivar of high photosynthesis rate, of good quality, and of high yield by means of somatic cell hybridization, we have used the cotyledon leaf, stem, and hypocotyl of soya as the material for tissue culture, have obtained the plantlets derived from callus for the first time, and have harvested the seeds therefrom. This is the preparatory work for cell hybridization in further experiments.

6168

CSO: 4009

ACTA GENETICA SINICA

AUTHOR: None

ORG: Cotton/Ricinus Graduate Practice Group, Worker-farmer-soldier Students of Class 1971, Genetics Specialty, Department of Biology, Nan-k'ai University; 5.1 Brigade Agriculture Research Center, Hu-shih-pai Commune, Huang-mei-hsien, Hupei Province

TITLE: "Preliminary Discussion on Problems of Cotton/Ricinus Graft-Progeny (Pi-ma-mien)"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 189-195

EXCERPT OF ENGLISH ABSTRACT: According to the result of some experiments and discussions it seems that Pi-ma-mien would be a vegetative hybrid rather than a sexual progeny or a sport of cotton because: (1) according to authors of pomology, sports are mainly produced from the graft-shoots including scion and stock; (2) pollens of ricinus hardly germinated on both stigmas of cotton and Pi-ma-mien and their pollen tubes could not penetrate into these stigmas; (3) no lateral root arose from the scion cotton stem after grafting; (4) tissues of scion cotton and stock ricinus were connected 10 days after grafting; (5) the 50 characteristics of Pi-ma-mien were analyzed and found to derive from features of both scion and stock; (6) it is important that this new variety of cotton should be bred by the method of vegetative hybridization only. A new hypothesis on the formation of characteristics in hybrid has also been propounded according to the philosophy of Chairman Mao.

AUTHOR: None

ORG: Section of Breeding Silkworm Race to be Reared During Summer and Autumn, Kiangsu Provincial Sericultural Research Institute

TITLE: "Consultation on Some Questions for Breeding Silkworm Race to be Reared During Summer and Autumn Seasons"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 196-201

EXCERPT OF ENGLISH ABSTRACT: (1) The aim of improving quality and vitality can be accomplished by choosing 2 groups of parents for hybridization: the blood lines of multivoltine and hypersilkgeneous bivoltine; (2) The quality of cocoon and silk would depreciate if the temperature is above 32°C and the vitality would fail if it is below 26°C; the optimum is 28-32°C; (3) Two groups of parents should be used for multicross and the progeny of hypersilkgeneous bivoltine should be backcrossed with the multivoltine race 2 or 3 times; (4) Selection according to morphological characteristics, e.g. marking, shape, and color of cocoons, is important during early generations. For eliminating the effect of environment, the best crossing combination may be selected by top-cross or by judging from lineal character. (5) The main economic characters of BC4-BC5 of the hybrid may be stable. It is effective to test the crossability in the early generations; hence, the quantity of test materials may be greatly minimized.



AUTHOR: WANG Te-yao [3769 1795 5069]

ORG: Department of Biology, University of Amoy

TITLE: "The Dialectics in the Principles of Development of Sexual Cells"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3  
No 3, Sep 76 pp 203-209

TEXT OF ENGLISH ABSTRACT: This paper deals with the detailed results of recent researches on cytology and biochemistry of development. Under the guidance of Marxist philosophy, especially that of Chairman Mao's ON CONTRADICTION, the author discusses the important problem, namely the dialectics in the principles of development of sexual cells, including how to understand exactly the biological signification of the phenomena of meiosis. The author analyzes and criticizes the idealism and the metaphysics of the cytogenetics school in their theories on the development of sexual cells and the phenomena of meiosis.

AUTHOR: P'EI Hsin-shu [5952 2450 3412]

ORG: Department of Agriculture, Hunan College of Agriculture

TITLE: "A Theory of Relative Heritability and Cross-Breeding"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3  
No 3, Sep 76 pp 210-215

TEXT OF ENGLISH ABSTRACT: According to a great many cross-breeding facts, it is proved that the characters of hybrid are principally determined by 2 factors, namely, the genetical characters of 2 parents ( $P_1$  and  $P_2$ ) and the relative heritability of parents ( $a_1$  and  $a_2$ .) The simple quantitative relation between the parent and hybrid may be expressed as follows:

$$F_1 = a_1 P_1 + a_2 P_2 .$$

This formula may measure the degree of dominance in all values. If the difference of the genetical material between 2 parents is great and their relation is complementary, the vigor and genetical contents of hybrids will be more significant and there will be more chance of selecting good types from their progenies.

AUTHOR: None

ORG: Wu-hsi Fermentation Plant for Enzymes; Institute of Chemical Engineering, Kiangsu Province; Wu-hsi Light Industry College; Institute of Genetics, Chinese Academy of Sciences

TITLE: "Selection and Industrial Application of a Highly  $\alpha$ -Amylase Producing Strain 209 From *Bacillus Subtilis* BF-7658"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 216-223

EXCERPT OF ENGLISH ABSTRACT: By subjecting the spores of *Bacillus subtilis* BF-7658, an industrial  $\alpha$ -amylase producer, to the mutagenic treatment of ethyl methane sulfonate (EMS) a high  $\alpha$ -amylase producing mutant, strain 209, was isolated. This new strain showed a 30% increase of  $\alpha$ -amylase activity when it was cultured in shaking flasks in a medium containing defatted soybean powder 3.5, corn flour 7.5,  $\text{Na}_2\text{HPO}_4$  0.8 ( $\text{NH}_4$ )<sub>2</sub> $\text{SO}_4$  0.4, and  $\text{CaCl}_2$  0.2% at 37°C for 40 hours. When strain 209 was grown in 10,000 and 20,000 liter fermentators with a fermentation process as described in this paper, it produced twice or more  $\alpha$ -amylase activity than the original strain 06-11.

AUTHOR: None

ORG: Section of Seaweed Cultivation, Institute of Marine Fisheries, Tsingtao; Section of Seaweed Genetics and Breeding, Institute of Oceanology, Chinese Academy of Sciences

TITLE: "Breeding of New Varieties of Hai-tai (*Laminaria Japonica* Aresch.) With High Production and High Iodine Content"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 224-230

EXCERPT OF ENGLISH ABSTRACT: Through intensive inbreeding, selection, and X-ray treatment, 2 new varieties of Hai-tai with high production and high iodine content were successfully bred. The original materials used were obtained from the natural population with a high level of hybridity. One of the new varieties, No 860, has undergone 15 generations of inbreeding and selection from 1959 to 1974, and is characterized by the more rapid growth rate of the frond at higher temperatures, resulting in a longer frond and a higher production; and a higher iodine content as compared with the local natural population. The other variety, No 1170, has undergone 5 generations of inbreeding, selection and x-ray treatment, and is characterized by a less water content and a higher iodine content; and a more rapid growth rate of the frond at higher temperatures resulting in a higher production than the local natural population.

AUTHOR: None

ORG: 102 Research Group, Institute of Genetics, Chinese Academy of Sciences

TITLE: "Discovery of a Transplantable Leukemia 615 Mouse Marker Chromosome in China"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 231-235

TEXT OF ENGLISH ABSTRACT: A leukemia marker chromosome was found in leukemia 615 mouse with C-banding and G-banding treatments. We named it Bj chromosome. The characteristics of this marker chromosome is that one of the pair No 19 chromosome has a marked heterochromatic zone on the long arm ends. The frequency of the marker chromosome averages about 44% on the 5th day injected with leukemia cell, but on 3rd day is only 8%. The results indicate that during the process of leukemia formation, the genetic material of the leukemia cells changed from the normal cells. The results would be valuable for the research of tumor cytogenetics and for the selection of antitumor drugs. The experimental results indicate that the proliferation of L615 mouse leukemia cells might be conducted in the following way. The leukemia cell of an initial leukemia female 615 mouse proliferate continuously in its hosts for hundreds of generations up to now, and the inoculated leukemia cells proliferate themselves in their host animals.

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CH'EN Hsia-shan [7115 0033 1472]  
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ORG: All of Yunnan Provincial Institute of Zoology

TITLE: "Studies of Fluorescing Y-Chromatin in Human Interphase Nuclei"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3 No 3, Sep 76 pp 236-241

EXCERPT OF ENGLISH ABSTRACT: In human interphase nuclei Y-chromatin is studied by quinacrine dihydrochloride stain and by fluorescent light source for microscope, both of which are made in Shanghai, China. Y-chromatin technique is recommended in detail. In lymphocytes and segmented polymorphonuclear granulocytes of peripheral blood, oral mucosa cells and spermatozoa from normal men the means of frequency of a Y-chromatin are 64, 45, 78, and 43% respectively. Y-chromatin is absent in leukocytes from the women, who aged over 25 years and undelivered boy, and in oral mucosa cells from females.

AUTHOR: None

ORG: Tung-pei-wang Commune Science and Technology Station, Peking Municipality;  
Wheat Breeding Group, Department of Agronomy, Hua-pei University of Agriculture

TITLE: "Research on Heterosis Utilization in Winter Wheat"

SOURCE: Peking I-CH'UAN HSUEH-PAO [ACTA GENETICA SINICA] in Chinese Vol 3  
No 3, Sep 76 pp 242-249

ABSTRACT: The station began the research work on heterosis utilization of winter wheat in 1970 and since 1973 the former Peking University of Agriculture joined in this effort. The project has also received assistance from other organizations of the Peking region. A number of male sterile systems and recovery systems have been obtained. According to repeated experimental cultivation in small areas of 5.4 m<sup>2</sup> each, of the 14 hybrid groupings, only 1 combination produced a yield higher than the control, Nung-ta 139. The yield of the remaining 13 combinations was all lower. Factors leading to the disappearance of heterosis or hybrid vigor and the relationship between the yield structure of the hybrids and their parent pairs are extensively analyzed. Based upon the lessons learned from the previous years, new viewpoints are formulated and presented for the purpose of improving future work.

6168

CSO: 4009

CHINESE MEDICAL JOURNAL

AUTHOR: None

ORG: Party Committee, Chiang-chen Commune, Ch'uan-sha-hsien, Shanghai Municipality

TITLE: "Insist Upon Periodical Exchange of Posts Between Barefoot Doctors and Commune Public Health Medical Staff"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 604-607

ABSTRACT: The Chiang-chen Commune has 69 barefoot doctors; its public health center has a medical staff of 47. Early in 1975, a periodical-exchange of posts system was established. Each year, 10 to 15 members of the medical staff are transferred to the brigades to take over the work of the same number of barefoot doctors who are transferred to the public health center to carry out the responsibilities of the medical staffmembers for the duration of one year. The entire staff of both groups are expected to complete the cycle of exchange in 3 to 4 years. Under this system, the barefoot doctors can learn to improve their medical knowledge while the staffmembers of the public health center can learn to accept reeducation from poor farmers of the countryside. At present, the first group of exchanged persons have completed their service and the second group have also served half of their term. The poor and lower-middle farmers are extremely pleased with the system. Their comment is that all doctors are now "barefoot."

AUTHOR: None

ORG: Hao-hsien Committee of Central Communist Party, Anhwei Province

TITLE: "New Development of Promoting 'Two-Management and Five-Reform,' Centered Upon Class Struggle"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 608-610

ABSTRACT: Hao-hsien of the North Huai-ho Plain is located on the northwestern border of Anhwei Province, with a population of 957,000 and a cultivated acreage of 2,040,000 mu. A cholera epidemic in 1931 killed more than half of its people, with most of its fields uncultivated for years and years. Beginning in 1965, hand-pumped wells and high-temperature compost have been extended but LIU Shao-ch'i's revisionism had interfered with further development. A 'Two-management and Five-reform' training class was not established until 1974. At present, the hsien has 40,300 improved wells, of which 12,500 have hand-operated pumps. Many of its open sewers have been filled and leveled; and many new latrines and animal shelters have been built. The more than 2,400 newly constructed roads have trees planted on both sides. New villages are completed for more than 1,020 production teams. The story of reconstructing the entire hsien to improve its sanitation conditions is told briefly in the paper.

AUTHOR: None

ORG: None

TITLE: "Chiang-ya-p'ing Tabella"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 610

ABSTRACT: Chiang-ya-p'ing tablet is a compound made from the Chinese traditional medicinal herb, *Archis hypogaea* L. and chemical drugs, including hydrochlorothiazidum, a hypotensive agent, and a somnifacient. It can reduce blood pressure and improve related symptoms. It is suitable for those suffering from second to third stage hypertension and for whom other drugs have proved to be ineffective. It generally has no side-effect, but is not suitable for those who are also suffering from hyperthyroidism, liver or kidney malfunction, and/or chromaffin cytoma. It should not be administered concurrently with ephedrinum, methyl-dopa, or ethyl alcohol.

AUTHOR: None

ORG: Jen-yang Commune Party Committee, Ch'ang-shu-hsien, Kiangsu Province

TITLE: "Strengthen Two-management Work to Serve Agriculture-Learn-From-Ta-chai Movement"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 611-612

ABSTRACT: The Jen-yang Commune is located in the lowland south of the Yangtze where agricultural production depends upon night soil. Under the small farm economy, each family had a small latrine which was always uncovered; open night soil holding tanks were, therefore, distributed all over the landscape. In addition, there was a local tradition of washing the night pots in the stream and applying fresh night soil for fertilizer. For these reasons the condition of water and environment pollution was extremely serious. Eggs of parasites and pathogenetic germs spread as easily as fire to cause epidemics of schistosomiasis and infectious diseases of the gastrointestinal tract. Although following agricultural collectivization many reforms had been adopted, interference from LIU Shao-ch'i's revisionism kept the condition from being drastically and fundamentally changed. It was not until the cultural revolution, especially until the Agriculture-learn-from-Ta-chai Movement of 1971 before the two-management work [management of latrines and drinking water] was strengthened and the sanitation condition of the 19 brigades of the commune changed completely. Details of this two-management work are described.

AUTHOR: None

ORG: Ta-chai High-temperature Compost Survey Group, Participated by Ta-chai Scientific Research Team, Environment Sanitation Laboratory, Institute of Public Health, Chinese Academy of Medical Sciences; Public Health and Epidemic Prevention Station, Chin-chung District, Shansi Province; Public Health and Epidemic Prevention Station, Hsi-yang-hsien, Shansi Province

TITLE: "Observation of Sanitation Effects of Ta-chai's High-temperature Compost Technique"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 613-615

ABSTRACT: For more than 20 years, the Ta-chai Brigade created many miracles and accumulated rich experiences. Coordinated with suitable quantities of chemical fertilizers, Ta-chai uses primarily organic fertilizers which are produced with night soil, animal manures, and stubble through a high-temperature compost technique. Currently, agriculture-learn-from-Ta-chai has become a widespread movement. For the purpose of extending the technique and providing the data with regard to disease elimination and health protection, the group was organized and dispatched to Ta-chai from the middle of December 1975 to the end of March 1976 to observe the effect of the high-temperature compost technique with regard to sanitation. The high-temperature compost technique and the procedure, method, and results of the survey are reported in the paper.

AUTHOR: None

ORG: None

TITLE: "Chih-tzu-t'ing Extractum Tabella"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 615

ABSTRACT: Chih-tzu-t'ing is the dried roots and underground stems of the plant, *Potentilla fragarioides* Linn, of the family Rosaceae. The effective element, d-Catechin, of Chih-tzu-t'ing extractum tablet has the action of increasing the contraction of the capillaries and that of the uterus. It is a suitable drug for uterine hemorrhage of various different causes. Animal experiment proved its toxicity to be minor. Clinical experimentation in nearly 1000 cases at the Third People's Hospital of Shanghai Second College of Medicine, the Third Workers' Hospital of Shanghai Bureau of the Textile Industry, and Ch'ang-ning District Women's Hospital, Shanghai Municipality indicated its effective rate to be as high as 84.4%. Each tablet contains 0.2 g of extractum, the equivalent of 1 g of the raw drug. The common dosage is 2-3 tablets daily for oral administration.

AUTHOR: None

ORG: Shantung Provincial Public Health and Epidemic Prevention Station; Chiao-nan-hsien Public Health and Epidemic Prevention Station, Shantung Province

TITLE: "Public Health Survey of the New Residential Villages of the Sheng-shui Hsi-pei Brigade of Ta-ch'ang Commune, Chiao-nan-hsien [Shantung Province]"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 616-618

ABSTRACT: The Sheng-shui Hsi-pei Brigade has 4 production teams, composed of a total of 96 families of 486 inhabitants. There is a cultivated acreage of 546 mu. Before the liberation, this was a poverty stricken and disease ridden region. After the liberation, under the leadership of the party and Chairman Mao, the conditions of living and production improved gradually. A mass movement of designing, planning, and constructing by the people themselves began in 1971 to build new villages and was completed in 1974. The cooperative medical service was established 6 years ago. It now has 3 barefoot doctors in the brigade and one public health agent for each of the production teams. In the past 4 years, there has not been a single case of encephalitis B. Compared with 1972, the incidence of dysentery, measles, malaria, and other infectious diseases was down 97% in 1975. This paper reports a survey of the natural conditions, the design of the new villages, the floor plan of the new residential dwellings, and the technique of management of sewer and water. Suggestions for future improvements are also discussed.

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KUO Nien-mei [6751 1819 2734]  
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ORG: LIU, KUO of Teaching and Research Group of Pediatrics, Szechwan College of Medicine; CH'EN of Teaching and Research Group of Pathology, Szechwan College of Medicine

TITLE: "Investigation Into Incidence of Encephalitis Without Increased Cell Count in the Cerebrospinal Fluid"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 618

ABSTRACT: In recent years, of the cases of epidemic encephalitis treated by the authors there were 13 cases the cell count of whose cerebrospinal fluid did not increase during the acute stage. If this condition is not understood thoroughly, diagnosis and treatment may easily be delayed. The clinical and pathological data of the 13 cases are presented, with a discussion of the reasons for the absence of cytolysis and the prognosis of such cases.



AUTHOR: None

ORG: Party Branch, Pien-men School, Pien-men Commune, Feng-ch'eng-hsien, Liaoning

TITLE: "Positively Develop Public Health and Physical Education Work in Schools of Rural Villages"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 619-621

ABSTRACT: Pien-men School is a 7-year school system established jointly by Pien-men and Ming-liang Brigades. In the past 17 years, the emphasis had been 'cultivation of the mind' at the expense of moral and physical education. It was only after repeated studies of Chairman Mao's directives concerning the struggle against revisionism that the teachers and the students were awakened to the line struggle; i.e. to the fact that physical education is not irrelevant. After the extreme importance of physical education was understood, a program of sanitation and physical exercise was established to combine public health with physical education, to unite public health with physical labor, and to coordinate sanitation practices with cultural activities. The principles and implementation of this program are reported.

AUTHOR: HSU Yu-sheng [6079 2589 3932]  
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ORG: HSU of Teaching and Research Group of Radiology, Shao-hsing District School of Public Health, Chekiang Province; WANG of Department of Radiology, Shao-hsing District, Chekiang

TITLE: "X-ray Signs of Congenital Hypoplasia of Skull and Collar Bone"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 621

ABSTRACT: This paper describes the case of a 19 year old girl. Her body is shorter than normal, but relatively symmetrical. Her head is very big to make her face appears to be much too small. Her nose and cheek bones cave in while her forehead and mandible protrude. Her neck is very long while her collar bones are very short to cause her shoulders to be extremely narrow and drooping. All her teeth have various degree of decay and aside from the 6th tooth on the right and left, upper and lower, all the remaining teeth are milk teeth, with one upper tooth missing on the right and the left side. Her mental development is satisfactory and menstruation normal. She does not complain of any discomfort, and can carry a rice sack weighing 20-30 shih-chin on her shoulders. The x-ray expressions of her skull and shoulders are presented and described. Her condition is perhaps familial and inheritable and should be distinguished from other forms of incomplete bone formation.

AUTHOR: None

ORG: Public Information Group, Chia-shou-hsien Revolutionary Committee, Anhwei

TITLE: "From a City Physician to a Master of Stove Reconstruction - Record of Career of the Public Health and Epidemic Prevention Physician, CH'EN Hsiang-meng [7115 4161 1322] in Developing 'Five-Reform' of Rural Villages"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 622-623

ABSTRACT: CH'EN Hsiang-meng originally worked at the Anhwei Provincial Center of Public Health and Epidemic Prevention. He was dispatched to Chia-shou-hsien in 1962 to take charge of food sanitation of residential streets and to serve as a physician in the department of external medicine in the hsien hospital. In 1971 he was transferred to the rural villages to develop the five-reform program in public health. The chimney-less stoves of rural household appalled him. He linked the smoke with the eye diseases and bronchitis which prevailed in that region. Working against many technical problems and stubborn resistance of time-honored tradition, he finally succeeded in designing and building a new stove which, being efficient and smokeless, won the acceptance of the local people. He was then asked to reconstruct stoves in the neighboring villages and soon became known as the master of stove reconstruction. This paper is written to report his amazing career.

AUTHOR: CHIN Ch'ing-feng [6855 1987 0023]

ORG: Department of External Medicine, Chin-shan-hsien People's Hospital, Shanghai Municipality

TITLE: "Technique of Valve Graft in Common Bile Duct to Duodenum Anastomosis"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 624-626

ABSTRACT: For the treatment of choledocholithiasis, in case of difficulty in removing stones from hepatic ducts or in obstructed bile flow, anastomosis of the common bile duct and the duodenum is a good method for preventing recurrence, but in some cases, infection, toxic shock, or liver abscess may occur. The author experimented with grafting a valve, which will be closed by the food passing through the pyloric orifice while the internal pressure of the bile duct will open the valve, which takes on the function of the sphincter muscle. Before it was applied clinically, the technique was tried on 4 hogs to determine the best possible design. Drawings are given in the paper to explain the technique.

AUTHOR: CHAO Wei-p' ng [6392 0251 7720]  
SHEN Chia-li [3088 1367 4539]  
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ORG: All of Department of Urology, Hua-shan Hospital, Shanghai First College of Medicine

TITLE: "Clinical Observation of Kidney Autoplastic Transplant for the Treatment of Stenosis of Renal Artery"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 627-629

ABSTRACT: From January 1973 to March 1975, 30 cases of hypertension induced by stenosis of renal artery were treated with surgery. The experience led the authors to consider the feasibility of removing the 'diseased kidney,' flushing it just as in heteroplastic transplant, and using it again for autoplastic transplantation. In foreign countries, the application of this technique has been reported in more than 20 cases. At present, this technique has been applied to more than 30 cases in China, including the 22 cases reported in this paper. In cases of bilateral stenosis (as in 15 cases of the group), the technique should be applied to the side that is more severely diseased first. After the surgery, the blood pressure dropped to normal in 10 cases; dropped obviously in 4; remained the same in one only.

AUTHOR: None

ORG: Chia-shou-hsien Public Health and Epidemic Prevention Station, Anhwei

TITLE: "Introducing A Fuel-saving, Sanitary, and Fertilizer-accumulating Stove"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 629

ABSTRACT: As a part of the 'two-management and five-reform' work, stove designs of various areas were earnestly summarized and experimented. In the process of reconstruction, new improvements were also adopted for the purpose of changing the traditional chimney-less stoves of this locality. A new stove, which the local masses call "an ox tail stove," has thus been formulated. It consists of the 3 parts of chimney, external structure, and internal structure. With the old fashioned stove, 2.3-3 chin of firewood was needed to burn 15 minutes to boil 10 chin of water. With the new stove, only 1 chin of firewood is needed to burn 8-10 minutes to bring the same amount of water to a boil. There is no smoke in the room so that incidence of eye diseases and bronchitis is reduced. Under the chimney, there is a section for smoking fertilizer, producing about 1,000 chin per month, sufficient to supply the needs of 2 mu of crop land. On the ground level, again under the chimney section, there is a place to keep the chickens. A drawing depicting the structure of the stove is included.

AUTHOR: CHENG Chi-lieh [6774 7139 3525]

ORG: Department of Stomatology, Chung-shan Hospital, Nanking Municipality

TITLE: "Clinical Observation and Experimental Study of One-Step Dry Pulp Technique for the Treatment of Dental Pulp Infection"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10,15 Oct 76 pp 630-631

ABSTRACT: A dry pulp agent is introduced, containing 20% of tripoly-formaldehyde, 0.5% of thymol, 0.5% of zinc sulfate, 53.5% of zinc oxide, and 25.5% of formaldehyde-cresol solution. For the treatment of pulp infection, after pulpotomy and sucking to remove all fragments, the dry pulp agent is placed in the cavity before filling with a silver mercury alloy. The total operation takes only 15-20 minutes to complete. From May 1973 to February 1976, a total of more than 800 cases were treated with this technique; of the group, x-ray was taken for 170. Reexamination of the 170 cases demonstrated the technique to be successful for 160, with only 8 cases of failure. Bacteriostatic tests and animal experiments are also conducted and reported. Future improvement is needed to cause the soft-paste like agent easier to apply and capable of being stored for longer a period than the present 2 weeks.

AUTHOR: None

ORG: Department of Dermatology, Tsingtao College of Medicine Hospital

TITLE: "Treatment Effects of Emetine Hydrochloride On Poisonous Fish Sting"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10,15 Oct 76 pp 632-633

ABSTRACT: In the regions of Pohai and the Yellow Sea, the most common poisonous fish are *Inimicus japonicus* Cuvier & Valenciennes and *Dasyatis akajei* Muller & Henle. When one is stung by one of these, localized pain, reddish swelling, and itching will occur immediately. In some cases, there may be a feeling of numbness and hemorrhage. In severe cases, these symptoms may accompany nausea, vomiting, cold sweat, breathing difficulty, or even death. In the past 15 years, a total of 124 have been treated at the hospital with hypodermic or muscular injection of 1 ml (30 mg) of emetine hydrochloride with 4-9 ml of saline water added. All were cured. These cases are reviewed and discussed.

AUTHOR: None

ORG: None

TITLE: "Ethylenediamine Tetraacetylimide"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No 10, 15 Oct 76 p 633

ABSTRACT: Ethylenediamine tetraacetylimide is also called imide-154, anticancer-161, or ICRF-154. It is a new antitumor drug. Its anti-cell growth action is mainly a suppression of deoxyribonucleic acid synthesis within the cell. In china, this drug has first been used to treat psoriasis, with very good short-term effects. More than 700 cases of psoriasis have been treated with imide-154 in 32 clinics in Shanghai, Kiangsu, Peking, Honan, Shansi, Anhwei, Szechwan, and Chekiang. Regarding its effect for the treatment of tumors, 16 clinics have applied it to treat more than 100 cases in Shanghai, Nanking, Peking, Kiangsu, Honan, and Shansi. Most of these were late stage with extensive metastasis. Preliminary results indicate that it does have a certain action in slowing down the advancement of the cancers.

AUTHOR: CH'EN Hsi-kuang [7115 3686 0342]  
HUI Kuo-chen [1920 0948 2823]  
CHAO Kui-te [6392 6311 1795]

ORG: All of Department of Neurosurgery, Tsun-i College of Medicine Hospital

TITLE: "A Simple, Hand-Operated, Grooved, Skull Drill"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No 10, 15 Oct 76 pp 634-636

ABSTRACT: Recently, the authors, as a part of the open-door education program, studied with workers and inspired by watching cobblers repairing shoes, succeeded in designing a new skull drill, to be used to reduce subcranial pressure or to withdraw fluid from ventricles of the brain quickly. The drill measures 10 cm in length, with a 3 cm long sharp end. The width is about 0.3 cm. A groove is made in the center, with sharpened edge on both sides of the groove. The tip is shaped like a triangular drill head, while the rear end is curved to make a handle. This paper describes the drill, the technique of applying it, and an analysis of 68 cases of clinical application since its creation.

AUTHOR: HSU T'ung-chu [1776 0681 2701]

ORG: Department of Radiology, Ju-kao-hsien People's Hospital, Kiangsu

TITLE: "Report of One Case of Bacillus Coli Pneumonia"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No 10, 15 Oct 76 p 636

ABSTRACT: This paper reports the case of a 54 year old male. Having suffered from fever, cough, and abdominal pain for 5 days, he was admitted as an emergency case after first being treated at another hospital with antibiotics and hormones without effects. The patient had a history of chronic bronchitis for more than 10 years. Treatment with massive doses of antibiotics, hormones, blood transfusion, fluid infusion, etc. brought about temporary improvement, but the condition of his lungs soon worsened and he died on the third day following his hospitalization. Culture of his expectoration proved to be Bacillus coli pneumonia.

AUTHOR: HO Yu-t'ien [0735 3022 1131]

ORG: Department of Radiology, Second Hospital, K'un-ming College of Medicine

TITLE: "Silicosis in Salt Mine Workers"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No 10, 15 Oct 76 p 637

ABSTRACT: In Yunnan Province, salt is extracted from underground mines and refined. In 1963, the author and colleagues discovered 41 cases of silicosis in one of salt mines. Special characteristics of these cases are presentative of the silicosis cases discovered in other salt mines of this province subsequently. Clinical data and x-ray manifestations are reported.

AUTHOR: HO Yu-t'ien [0735 3022 1131]

ORG: Department of Radiology, Second Hospital, K'un-ming College of Medicine

TITLE: "X-Ray Studies of Lower Artery of Right Lung of 938 Normal Mine Workers"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 638

ABSTRACT: In the state formulated x-ray diagnosis standard for silicosis, items of anomalies of the hilus pulmonis are listed, but standard of normality of the hilus pulmonies and lower artery of the right lung of healthy workers of mines with siliceous dust has not yet been established. Such a standard can certainly help in the diagnosis of pulmonary arterial hypertension. For the purpose of establishing a standard, the author and colleagues conducted a survey of 2,454 workers of underground mines in 8 districts, and selected among the chest x-rays, 938 cases devoid of specific symptoms. Most of the group of 938 had worked in siliceous mines for more than 5 years. They aged 18-55. The x-ray data of this group are analyzed and discussed.

AUTHOR: None

ORG: Shanghai Municipal First Center for Health Protection of Women and Children; Chinese Welfare Council International Peace Center for Health Protection of Women and Children; Shanghai Municipal Children's Hospital; Shanghai First College of Medicine Hospital of Obstetrics and Gynecology; Fu-tan University Electrical Light Source Laboratory

TITLE: "Blue Light Treatment of Hyperbilirubinemia in the Newborn"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 639-642

ABSTRACT: The blue light used in the treatment is the 40 w - 48 hour or 20 w - 24 hour blue colored fluorescent light bulb, with a wave length of primarily 420-470  $\mu$ m. These light bulbs are manufactured in China. For the treatment, the newborn is exposed to the light at a distance of 33-50cm from his skin, at an intensity of 200-460 feet candle-light. Continuous exposure technique was adopted for the entire group of 550 infants, at a duration of 24-48 hours in most cases. The treatment results are extensively analyzed.

AUTHOR: WANG Shu [3769 4872]  
YU Chiang-lin [3266 3068 2651]

ORG: WANG of Chu-chuang Commune Public Health Center, Hsu-chou Municipality;  
YU of Hsu-chou College of Medicine Hospital

TITLE: "Report of One Case of Postperitoneal Chemical Receptor Tumor"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No. 10, 15 Oct 76 p 642

ABSTRACT: The 44 year old female patient had discovered a fist-sized tumor in the upper left abdomen 7 years previously and it had been gradually enlarging. She first felt abdominal pain 2 months before requesting treatment. Following surgical removal, the pathological diagnosis was postperitoneal non-chromaffin paraganglioma. Chemical receptors are distributed everywhere in the circulatory system of the body. Tumors of this type of tissue are all called chemical receptor tumors, but some prefer to name the tumor by the location of its growth and the authors do not agree with this method. They believe the pathological diagnosis of this case should be postperitoneal chemical receptor tumor. At the time of this report, there has been no recurrence or metastasis in the five years of follow-ups since her surgery.

AUTHOR: None

ORG: Pei-hai Municipal People's Hospital, Kuangsi Chuang Nationality Autonomous Region

TITLE: "Cultural Revolution Urges Emphasis Upon Drug Quality Inspection"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese  
No 10, 15 Oct 76 pp 643-644

ABSTRACT: The drug inspection laboratory of the hospital was established in 1963, but due to the interference of LIU Shao-ch'i revisionism, quality inspection of drugs became a routine and formality and consequently the inspection procedure did not have any effect on drug production or on guaranteeing drug safety. During the cultural revolution, the pharmaceutical and public health staffmembers of the hospital were dispatched to the rural and fishing villages to practice medicine and to accept reeducation from the poor farmers and fishermen. Through a reorientation of their world viewpoint, they came to realize the fact that the quality of drugs is directly related to the health and safety of the patient and the fact that the problem is not that of a professional technique but that of the principle of the type of man one is. Changes made in the drug inspection system at the hospital during the subsequent years are reported and discussed.



AUTHOR: None

ORG: Department of Radiology, the 59th Hospital, Chinese People's Liberation Army

TITLE: "Rate of X-Ray Diagnosis of Ulcers Improved With the New Acupuncture Technique"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 644

ABSTRACT: In the past several years, the technique of acupuncture of the Chiao-gan or Ho-ku points has been adopted for 52 patients of suspected ulcers during x-ray examinations. In case of stomach or duodenal bulb spasm, the nature can be clearly demonstrated after acupuncture; in case of prolonged bulbar anomaly, acupuncture can distinguish active ulceration; in case of pyloric obstruction the cause may be revealed after acupuncture. The effective rate of this group was 82.7%.

AUTHOR: None

ORG: Internal Secretion Group, Department of Internal Medicine, Hua-shan Hospital, Shanghai First College of Medicine; and Its Isotope Laboratory; Shanghai First College of Medicine Hospital of Obstetrics and Gynecology; Polypeptide Group, Institute of Biochemistry, Chinese Academy of Sciences; Shanghai Institute of Experimental Biology

TITLE: "Preliminary Clinical Observation of Luteining Hormone Releasing Hormone (LRH) Test"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 645-648

ABSTRACT: For the purpose of studying the action mechanism of contraceptive drugs and their effects on the function of internal secretion so as to look for more ideal contraceptives and for prevention and treatment of side-effects of oral contraceptives, pituitary reactions to stimulation by synthetic LRH made in China of 75 persons were observed. Another group of 7 cases accepted the use of LRH for treatment of various conditions. Clinical observations of these cases are reported.

AUTHOR: None

ORG: Public Health and Epidemic Prevention Station, Kuangsi Chuang Nationality Autonomous Region

TITLE: "Sanitation of Basic Construction Sites of Agricultural Fields"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 649-650

ABSTRACT: During the mass movement of agriculture-learn-from-Ta-chai, the work of basic construction of agricultural fields is glorious as well as arduous. In order to protect the strength and health of the participating workers and soldiers, certain sanitary principles must be implemented at the construction sites. Problems concerning sanitation of the work environment, of the food served at the construction sites, of drinking water and latrines, and of the temporary over night shelters are discussed in the paper.

AUTHOR: None

ORG: None

TITLE: "Li-tan Ch'un"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 650

ABSTRACT: Li-tan ch'un [gall bladder benefit alcohol] is phenylpropionic alcohol. It can promote the secretion of bile and reduce the level of cholesterol. It also has a mild action of relieving spasm. Clinical experiments at the First Hospital of Wuhan College of Medicine, the Second Hospital of Shen-yang College of Medicine, and other hospitals in Shanghai and Peking confirmed its effects in increasing bile secretion, expelling stones, and reducing jaundice. Reports of tests with dogs and mice are also briefly mentioned in the paper.

AUTHOR: LIU Chung-ming [0491 1813 6900]  
TS'AO Shih-lo [2580 0013 2867]  
WU Chia-hsiang [0702 1367 4382]

ORG: Teaching and Research Laboratory of Internal Medicine, Third Clinical Hospital, Kirin University of Medicine; Teaching and Research Laboratory of Pathology and Anatomy, Basic Medical Research Department, Kirin University of Medicine

TITLE: "Discussion of Clinical Pathology: The 38th Case - Abdominal Pain, Diarrhea, Severe Ascites, Vomiting"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 651-654

ABSTRACT: This paper contains the case history, clinical discussions, post-mortem report, and a summary discussion of the lessons learned from the case of a 29 year old female farmer. She had been diagnosed to be suffering from tuberculous pleurisy. Postmortem disclosed extensive tumorous growth and necrosis of the mesentery and pancreatic lymph nodes. Judging from the distribution of the tumors and the histological characteristics of the tumors, the post-mortem diagnosis is Hodgkin's disease. The reasons for the mistaken diagnosis are examined.

AUTHOR: None

ORG: None

TITLE: "Li-hsiao-ling [Dysentery Eliminating] Tablets - Drug Made of Inflorescence of Poplar"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 654

ABSTRACT: Li-hsiao-ling Tablet is made of dried stamens of either Canadian poplar (*Populus canadensis* Moench) or white poplar (*Populus tomentosa* Carr.) Each tablet contains 2 g of the stamens. Clinical observations by Peking T'ao-jan-t'ing Hospital and 11 other medical units indicate a 88% effective rate for the treatment of enteritis and acute bacterial dysentery. Side-effects were not observed during the period of drug administration.

AUTHOR: None

ORG: Microscope Laboratory, Shanghai First College of Medicine; K'o-shan Disease Prevention and Treatment Research Teach, Institute of Public Health, Chinese Academy of Medical Sciences

TITLE: "Introducing Two Instances of Using Chinese Made Packing Agent to Produce Ultra-thin Slides of Bio-tissues"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 pp 655-656

ABSTRACT: This paper includes two short reports: (1) Application and improvement of epoxy resin No 618, by the Microscope Laboratory of Shanghai First College of Medicine; (2) Application and understanding of epoxy resin No 711. In each report, a description of the resin, the method of mixing the different ingredients to form the packing solution, the process of making ultra-thin slides, and the microscopic definition of the products are discussed.

AUTHOR: None

ORG: Chu-chi-hsien Public Health and Epidemic Prevention Station, Chekiang

TITLE: "Introducing a Small-opening Well With a Hand-operated Pump"

SOURCE: Peking CHUNG-HUA I-HSUEH TSA-CHIH [CHINESE MEDICAL JOURNAL] in Chinese No 10, 15 Oct 76 p 656

ABSTRACT: In the process of developing basic construction for public health as a part of the 'two-management and five-reform' movement, Chu-chi-hsien learned from the experience of other areas and extended a well with a small opening and a hand-operated pump. Practice has proved that this well is easy to build, the water is of good quality, and it is very convenient to draw water from the well. A drawing depicting the cross-section of the well is included with the description of the structure.

6168

CSO: 4009

SCIENTIFIC EXPERIMENT

AUTHOR: T' IEN Chi [3944 1015]

ORG: None

TITLE: "300,000 kw Double-flow Internally Cooled Steam-Turbine-Driven Generator"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 10, Oct 76 pp 5-7

ABSTRACT: The author reviews the development and construction of the first Chinese self-designed, constructed and installed 300,000 kw double-flow internally cooled steam-turbine-driven generator, which is now operating in the Grand Canal area of northern Kiangsu province. The generator is characterized by its adoption and development of more than 2,000 new products, materials, techniques and technology that includes direct-flow boilers, intermediate reheat systems, double-flow internal cooling system, specially designed blades and water inlet pipes, special alloys and steels, and others. An electronic computer controlled automation equipment is to be installed in the near future. Front cover shows a photo of the generator.

AUTHOR: None

ORG: Metal and Strength of Materials Research Laboratory, Si-an Chiao-t'ung University

TITLE: "A Study on the Law of Repeated Impact Resistance and Its Applications"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 10, Oct 76 pp 8-9

ABSTRACT: This article reports a study on the law of resistance to repeated impacts, and concludes that there should be a distinction between once-through impact and repeated impacts, where impact fatigue is the cause of destruction of the later. Therefore high strength and low impact tenacity, instead of larger size and adoption of more expensive materials, should be the main concern to longer serviceable life for materials that encountering repeated impacts. The conclusion has enabled the adoption of water quenching instead of oil quenching in the heat treatment of hammers and levers, a new approach to the design and materials of pistons, and considerable reduction in sizes of machine parts concerned with astounding results.

AUTHOR: None

ORG: Department of Osteology, Sixth Shanghai People's Hospital

TITLE: "New Advances in Free Muscle Grafting Micro-surgery"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 10-11,19

ABSTRACT: This article reports a successful free muscle grafting micro-surgery in the treatment of a serious case of arm muscle contraction and total loss of finger and wrist flexibility. The micro-surgery involves the grafting of the injured arm and hand with muscles, veins and nerves from breast and abdomen. The patient was practically totally recovered after two years. An introduction is also made on the significance and technique of micro-surgery and its applications.

AUTHORS: CH' IEN Fang [6929 2455]  
MA Hsing-hua [7456 6821 5478]

ORG: Both of Institute of Geomechanics, Chinese Academy of Sciences

TITLE: "Yuan-mou Anthropoids of 1.7 Million Years Ago"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 12-14

ABSTRACT: The authors report further discoveries by various institutes of the Chinese Academy of Sciences in 1973 from Yuan-mou in north-eastern Yunnan, following the first 1965 discovery of two anthropoid teeth fossils. The discoveries include: 1) proof of two cold weather and four glacier movements in the Quaternary Period; 2) stone implements of the anthropoids; 3) three layers of carbon dust that prove use of fire; 4) 40 species of extinct mammalian fossils; 5) fossils for vegetation, climate and chemical element transportation studies; and 6) further study on the anthropoid teeth fossils. 9 photos of the discoveries are reproduced on cover 3.

AUTHORS: MA Hsing-hua [7456 6821 5478]  
CH'ien Fang [6929 2455]

ORG: None

TITLE: "Palaco-geomagnetic Method"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 p 14

ABSTRACT: Following an introduction to the phenomenon of polar reversal in the history of the earth, and the origin of magnetism in rocks and fossils, the authors describe how geologic age can be determined by measuring the direction and intensity of primary residual magnetism in rocks that correspond also to the polar reversal variations of the geomagnetic field, the variations of which are in sequential orders against age. The method was adopted by the Chinese Academy of Sciences to determine the age of Yuan-mou anthropoid, and the age of Yuan-mou strata formation.

AUTHOR: None

ORG: This Journal

TITLE: "Shanghai Scientific Technology Exchange Station"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 15-16, 27

ABSTRACT: This article reports some activities at the Shanghai Scientific Technology Exchange Station, which include introduction, promotion and interchange of scientific technology, in an effort to help solve production problems. The achievement reviewed includes introduction of a newly developed laser transit, and a line cutting machine, exhibition of some new silicate materials, demonstration of more recent welding techniques, and others.

AUTHOR: KUO Li-ts'an [6753 1462 3605]

ORG: None

TITLE: "Earthquake and Earth Structure"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 17-19

ABSTRACT: Based on the modern explanations of the causes of earthquake activities by the tabular structure theory and the continental shelves' convection current theory, the author discusses the structure of the earth, the strength of rock formation, the volcano activities, and the characteristics of igneous magma to further support the explanation. It is pointed out that evidences of the correlations of earthquakes between the Japan sea trench and northern China, and those between southwestern China and northern China can easily be explained also by the tabular structure theory.

AUTHOR: None

ORG: Institute of Animal Husbandry and Veterinary Science, Peking  
Academy of Agricultural Science

TITLE: "Lithospermum officinale, L. -- A Superior Fodder Grass"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 20-21

ABSTRACT: This article advocates the cultivation of *Lithospermum officinale* L., a grass introduced from Europe, where the leaves and stems are good green fodders for livestock and poultry, for reasons of its high nutritious contents, easy to cultivate, appeal to livestock and poultry, and very high yield. The techniques of multiplication by cut roots, planting, field management and harvest are also introduced.



AUTHOR: CHIANG Yung-ming [1203 3196 2494]

ORG: None

TITLE: "Chemical Simulation of Biological Nitrogen Fixation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 21-22

ABSTRACT: The author reviews recent advances in the chemical simulation of biological nitrogen fixation. While establishing the role of nitrogen fixing enzymes, a compound of molybdenum-iron-containing protein and iron-containing protein, as well as electron donors, adenosin triphosphate and magnesium ions in the nitrogen-fixing process, the complete chemical structure of the nitrogen-fixing enzymes, the mechanism of the direct participation of the metallic atoms in nitrogen complex reduction, and the mechanism of electron donors, still remain to be studied.

AUTHOR: FU Yu-shou [0265 5940 1108]

ORG: None

TITLE: "Laser and Agriculture"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 23-24

ABSTRACT: The author introduces the applications of laser techniques in agriculture with regard to: 1) breeding of good crop varieties by radiation on seeds, and treatment of saplings; 2) pest control and treatment of plant diseases; and 3) increasing the efficiency of photosynthesis. It is reported that many scores of units in China are now conducting such research with satisfactory results, and that a CO<sub>2</sub> laser seed cultivation machine was recently made by the Peking Institute of Mechanics of the Chinese Academy of Sciences.

AUTHOR: None

ORG: Tientsin T'ang-ku District Teng-shan-ku Commune Agriculture Station

TITLE: "Purification and Revitalization of Tientsin Cabbage"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 10, Oct 76 p 24

ABSTRACT: This article introduces the techniques for the purification and revitalization of Tientsin cabbage developed by the Tientsin T'ang-ku District Teng-shan-ku Commune Agriculture Station in two years. The techniques introduced include; 1) group selection of good cabbage characteristics from the field, cellar, cutting, planting and plant varieties; 2) selection of mother systems; and 3) asexual propagation.

AUTHOR: None

ORG: This Journal

TITLE: "First Hydraulic Stone Planing Machine of China"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 10, Oct 76 p 25

ABSTRACT: This article reports the first Chinese made model BS109-A hydraulic stone planing machine, jointly developed by the Tsingtao Bicycle Plant, Tsingtao Textile Machinery Plant, Tsingtao Hung-hsing Ship Yard, Tsingtao Machine Tool Plant, Tsingtao Construction Materials and Machinery Plant, and Tsingtao Rock Machine Plant. after two years of joint effort. Applying the new efflux and fluid pressure techniques, the machine has increased the efficiency of planing by 10 times, and reduced the cost of planing by 30%, compared to manual planing, and can be applied to plain, stripes, figure, and embossed planing of any rock or stone materials.

AUTHOR: None

ORG: This Journal

TITLE: "Model DJ-77K Low Temperature Thermostat"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 p 25

ABSTRACT: This article reports the development of model DJ-77K low temperature thermostat, jointly developed by the Dairen Measurement Standard Bureau, Tientsin Measurement Administration, Fourth Dairen Instrument Plant, Tientsin Northern China Electric Equipment Plant, and Dairen Kuang-ming Chemical Plant. Cooled with liquid nitrogen, the thermostat has a temperature range of 0--210°C, a thermostat precision of  $\pm 0.005^\circ\text{C}$ , and four thermometer insertion holes.

AUTHOR: None

ORG: This Journal

TITLE: "Flame Inhibitor"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 p 25

ABSTRACT: This article reports successful preparation of a flame inhibitor, tri(2,3-dibromopropyl) phosphate by the joint effort of Tientsin Institute of Synthetic Materials Industry, and Second Tientsin Chemical Reagent Plant. The inhibitor has been satisfactorily applied to polystyrene foam plastics, paper disk amplifier, polyacryline, polyaminoester foam plastics, and others. The raw materials are abundant in China, and the process is simple.

AUTHOR: KENG Ch'ing-kuo [5105 1987 0948]

ORG: Peking Earthquake Team

TITLE: "Drought and Earthquake"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 26-27

ABSTRACT: The author reports a statistical study on the relationship between drought and earthquake. It was found that of the 69 large earthquakes of more than 6 richter scale recorded throughout the history of China from 231 B.C. to 1971, 58 or 84% of them were preceded from one to three years by serious droughts. In conclusion, the author stresses the significance of utilizing climatic anomaly as a means of earthquake prediction.

AUTHOR: CHANG Hsin-hsing [1728 2450 5281]

ORG: Peking Agriculture and Forestry Bureau

TITLE: "A High Yielding Three Crop System"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 28-29, 39

ABSTRACT: The author introduces an intercropping three crop system successfully adopted in the Peking vicinity, that has increased grain production to 1,564 kan per mou by 1975. The main formulae are the rotating and intercropping of wheat, maize, sorghum, corn, peanut, legumes fodders, green manure or sweet potato in four combinations, where the seasonal climate, soil, sunlight and precipitation are fully utilized.

AUTHOR: LIU Ch'ang-sheng [0491 7022 4141]

ORG: None

TITLE: "Infra-red Technique in Meteorological Probe"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 32-33

ABSTRACT: The author introduces the general knowledge concerned with the application of infra-red technique in the photographing of clouds, and the measurement of the vertical distribution of temperature for weather forecasting, and the advantages of the technique.

AUTHOR: SUN Yueh-tseng [1327 1878 2582]

ORG: None

TITLE: "Roundless Gears"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 34-35

ABSTRACT: The author introduces the performance theory, drive characteristics, construction forms and types, advantages and applications of roundless gears, that have been enjoying ever increasing adoption in automation control technology, textile and paper machinery, function potentiometer, egg gear flowmeter, color TV, space camera, and many others.

AUTHOR: None

ORG: Electrode Research Group, Nanking Institute of Pedology,  
Chinese Academy of Sciences

TITLE: "Ion Selective Electrode"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 pp 36-37

ABSTRACT: This article introduces the construction, performance theory and characteristics of the new ion selective electrode technique, and its application to agricultural production in soil and fertilizer analysis, industrial production and medicine. Besides mentioning the many types of ion selective electrodes and ionometers already developed and adopted in China, the article stresses the importance of the new technique, and its further improvement and wider adoption.

AUTHOR: WAN Kuo-liang [5502 0948 5328]

ORG: None

TITLE: "Observation of Solar Annular Eclipse at Sinkiang"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 p 40 and Back cover

ABSTRACT: Explaining the picture on the back cover showing the solar annular eclipse observed at Sinkiang on 29 April 1976, this article reports the observation conducted by personnels of the Peking Observatory and Institute of Physics of the Chinese Academy of Sciences, Peking Astronomical Museum, Shanghai Museum, Tientsin Technological Bureau, Chu-chiang Motion Picture Studio, and others. Four 12 mm diameter reflection telescopes, and many other measuring instruments all made in China were used for the observation. The eclipse lasted 2 hours and 25 minutes. The width of the annular eclipse band was about 277 kilometers.

AUTHOR: None

ORG: This Journal

TITLE: "Recovering T'ang-shan Production"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese  
No 10, Oct 76 cover 2

ABSTRACT: This cover reproduces 7 photographs showing T'ang-shan's steel, automobile, ceramics, plastics, power generation, pharmaceutical and bicycle plants recovering their production after the great T'ang-shan earthquake.

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CSO: 4009/40

SCIENTIA SILVAE SINICA

AUTHOR: None

ORG: Pei-chiang Institute of Forestry, Liu-chou District, Kuangsi Chuang Nationality Autonomous Region

TITLE: "Propagation of Bamboo From Seeds"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 49-52

ABSTRACT: In 1963, regions of Chao-p'ing, Ho-hsien, Meng-shan, etc. were alarmed by large acreage blooming of bamboo and the leadership immediately organized technical and scientific staffmembers to seek control measures. It was learned that before a stand of bamboo was about to bloom, the production of bamboo shoots declined first. Then, the leaves began to turn yellow, and after shedding, abnormally small leaves appeared just before the development of spikes and blooms. After blooming, the culm above the ground withered and died, and the underground rhizome also began to deteriorate and rot. In the old Confucian society, the blooming of bamboo was regarded to be a bad omen, striking fear in the hearts of the people. During this investigation of 1963, a poor old farmer of the Mao-p'ing Brigade of Chao-p'ing remarked, however, that a local bamboo forest bloomed over an extensive area in 1943. After-

[continuation of CHUNG-KUO LIN-YEH K'O-HSUEH No 3, 1976 pp 49-52]

wards self-sown sprouts appeared. A patch of new bamboo was in fact made up entirely of the self-sown sprouts. Based upon this experience, seeds were harvested and experimentally planted. In the spring of 1964, bamboo sprouts were obtained from artificially sown seeds for the first time. The young plants tillered very fast; in a year they were ready to be divided into numerous plants for asexual propagation. Since then, the acreage of this species of large bamboo has been rapidly enlarged throughout all the provinces and districts of South China in this manner. Aside from growing new sprouts from seeds, many new techniques of asexual propagation have also been created. This paper recounts the experience. Photos of the bamboo spikes, seeds, tillering condition, 30-day, 50-day, 150-day, and 200-day old plants, underground rhizome, and plants divided from either the culms or the rhisomes of the new plants are included.



AUTHOR: None

ORG: Pine Caterpillar Prevention and Control Science and Technology Cooperative Group of Thirteen Provinces of South China

TITLE: "Use of Red-Eyed Wasp for Prevention and Control of Pine Caterpillars"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 53-57

ABSTRACT: The provinces of South China have used mainly chemical insecticides to control pine caterpillars in the past 20 years. The technique has been effective to a certain extent but many regions have applied the chemicals excessively in emergencies to cause the extinction of natural enemies of pine caterpillars which also developed drug resistance. Consequently, insecticides are applied every year with declining effectiveness. Red-eyed wasps are natural enemies of the pine caterpillars; in South China, the naturally existing species is *Trichogramma dendrolimi* Mats, which generally occur in the later stages of pine caterpillar crises after the pine trees have suffered irreparable damage. Techniques of capturing eggs of pine caterpillars or using intermediate hosts of eggs of *Antheraca pernyi* or *Aeacus cynthia ricini* to raise the wasps to be released at a proper time to control the population of pine caterpillars before they damage the pine trees have been developed. Introducing honey producing plants to provide a favorable environment for the wasps should be the next project in the pine caterpillar prevention work.

AUTHOR: None

ORG: Pine Caterpillar Prevention and Control Science and Technology Cooperative Group of Thirteen Provinces of South China

TITLE: "Use of *Beaureria bassiana* (Bals.) Vuill. for Prevention and Control of Pine Caterpillars"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 58-62

ABSTRACT: In South China, *Beaureria bassiana* (Bals.) Vuill. often occur spontaneously in the spring and summer in many pine forests to cause the pine moths to die in large quantities. For example, in 1954, the fatality rate was as high as 85-95% in the large pine forests of Hunan Province; in 1964, almost all pine moths died in Kuei-lin of Kuangsi of the infection. Since a mass movement of research on the use of this fungus for biological insect control was launched, the masses of Hsin-hui-hsien, Kuangtung Province created the technique of using potatoes and/or melons as ~~multare~~ media to produce the fungus in 1960. In the spring of 1970, they applied many means of dusting, spraying, and releasing infected live caterpillars prepared with the new technique of producing *Beaureria bassiana* to treat more than 50 thousand mu of pine forests. For the first time, the research on this subject was truly liberated from the laboratory and was directly and effectively applied to production. This new, simple and inexpensive technique of producing the fungus and of applying it to control pine moths are described.

AUTHOR: None

ORG: Chi-an Science and Technology Service Team, Chinese Academy of Agriculture and Forestry

TITLE: "Research on Culm Blight of Large Bamboo"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 63-68

ABSTRACT: Since 1959, the bamboo forests of the coastal region of Chekiang Province have been threatened by the culm blight disease. In recent years, this disease has spread over most of the province and incidences have also been discovered in Kiangsu, Kiangsi, and Shanghai. According to survey data, the disease first appears in early to middle July as light brown spots on the nodes of new bamboo stands. As the temperature rises, the spots spread and enlarge until they encircle the culm or a branch. By then, the spots are darkened and the leaves of the stand begin to wither and the plant dies. In 1971-1973, diseased stands were collected from several areas of Chekiang for culture, inoculation, and isolation to determine the pathogenesis. The pathogen was thus identified to be *Leptosphaeria* which damages this particular species of large bamboo only. Strengthened management can improve the bamboo's resistance to this disease, and spraying with benzimidazole or copper sulfate is found to be obviously effective. Factors influencing the spreading of this disease and measures for forecasting its occurrence and severity are also discussed.

AUTHOR: None

ORG: Shanghai Man-made Construction Board Plant

TITLE: "Application of Jet Flow Technique in Regulating the Thickness of Pulp"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 71-74

ABSTRACT: In the fibreboard manufacturing process, for the purpose of guaranteeing stable quality, it is necessary to control the ratio of the weight of dry pulp to 100 g of water [in the wet-felting process.] The old-fashioned regulator was not sufficiently sensitive and manual regulation was required at times. This shortcoming had prevented automation at the plant. In a joint effort with the Shanghai Institute of Automated Industrial Instruments and the Wood Work Laboratory of the Shanghai Municipal Paper and Wood Company, the authors studied and made a regulating device utilizing turbo velocity transmission and jet proportional regulation components and the goal of totally automated control was achieved. This device has a capacity of regulating the thickness of the pulp in the 1.5-3% range. At present, the pulp is controlled at 1.6-1.8% in thickness, completely satisfactory for the production requirement of the plant. Block diagrams and drawings depicting the theory and the structure of this regulating device are given.

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ORG: Both of Wuhan Municipal Comprehensive Material Manufacturing Plant

TITLE: "Application of Jet Flow Technique in the Control Program of Fibreboard Processing"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 75-77

ABSTRACT: A jet flow control system was adopted in the fibreboard manufacturing equipment of the plant, which produces 2,000 tons of fibreboard yearly. Compared with the electrical control system that was replaced, the jet flow control system is smaller and its parts are not as easily damaged; therefore, the cost of maintenance is reduced. Although the turning over time of the new system is slower, it is nevertheless completely satisfactory for the limited production capacity of the plant. The circuit and a flow chart of the jet flow control system are described at length, and drawings are included.

AUTHOR: None

ORG: Nan-feng-hsien Chemical Engineering Plant, Kiangsi Province

TITLE: "A Discussion on How did we Prevent Rosin From Crystallizing"

SOURCE: Peking CHUNG-KUO LIN-YEH K'O-HSUEH [SCIENTIA SILVAE SINICA] in Chinese No 3, Nov 76 pp 78-79

ABSTRACT: Several papers had been published in succession in recent issues of CHUNG-KUO LIN-YEH K'O-HSUEH on problems of crystallization of colophony. Many valuable experiences and rational understandings of this significant problem in rosin production have thus been publicized. In the interest of completely eliminating this problem, the authors wish to contribute their own story. Late in 1973, the plant began to design, manufacture, and install a set of equipment for manufacturing colophony and the production began in 1974. Due to lack of experience, the crystallization rate of the first year was as high as 6%. The causative factors were analyzed. As a result, a lining was added to the liquid rosin storage tank to prevent the formation of white turbid substance on the inner wall of the tank. The high temperature distillation time was shortened from 20-25 minutes to 9-13. After these 2 measures were adopted, the average crystallization rate, in 1975, was 0.1%. The condition of production in 1976 appears to be very good also.